Claims 1, 9, 13, 17 and 18 have been amended to broaden the scope of such claims. Specifically, the term "a highest of said . . . sweep rates" has been amended to read "a higher one of said . . . sweep rates." This amendment is supported by the specification at least on page 6, lines 17-21 and on page 7, lines 4-10. Additionally, since claims 1, 9, 13, 17 and 18 have been broadened by such amendments, these amendments will not affect the application of the doctrine of equivalents to these claims.

The remaining amendments to the claims have been made solely for the purpose of providing clarity to the respective amended elements, and not for the purposes of patentability (namely the amendments have not been made to differentiate such elements over prior art). Therefore, the application of the doctrine of equivalents to these claims will not be affected by such amendments.

New claims 19-23 have been added to include the subject matter removed from original claims 1, 9, 13, 17 and 18 respectively, in dependent form.

New claims 24 and 25 have been added to claim certain aspects of the present invention with greater specificity. Support for such new claims can be found at least in the original claims and in the specification, page 6, lines 17-21 and page 7, lines 4-10.

In light of the foregoing, claims 1-25 are now pending. Favorable consideration of the present application is respectfully requested. If the examiner wishes to discuss any aspect of this application or this amendment, he/she is invited to contact the undersigned at the telephone number provided below.

Respectfully submitted,

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1. (Amended) A quadrature amplitude modulation demodulator comprising a timing synchroniser for resampling an incoming sampled quadrature amplitude modulated signal and a controller for controlling said timing synchroniser, said timing synchroniser having an acquisition mode in which said incoming signal is resampled with a sampling period which sweeps between first upper and lower limit values at a plurality of different timing synchroniser sweep rates, said controller being arranged to initiate an acquisition cycle at a [highest] higher one of said timing synchroniser sweep rates, to reduce a timing synchroniser sweep rate monotonically and to switch said timing synchroniser to a tracking mode if a timing error is below a first threshold.

2. (Amended) A demodulator as claimed in claim 1, in which said controller is arranged, in said acquisition mode, to repeat each of said timing synchroniser sweep rates a first predetermined number of times before selecting a next of said timing synchroniser sweep rates.

9. (Amended) A demodulator as claimed in claim 7, in which said carrier synchroniser has an acquisition mode in which a frequency of a locally generated signal sweeps between second upper and lower limited values at a plurality of different carrier synchroniser sweep rates, said controller being arranged to initiate a carrier acquisition cycle at a [highest] higher one of said carrier synchroniser sweep rates, to reduce a carrier synchroniser sweep rate monotonically and to switch said carrier synchroniser to a tracking mode if a carrier synchronisation error is below a second threshold.

10. (Amended) A demodulator as claimed in claim 9, in which said controller is arranged, in said carrier synchroniser acquisition mode, to repeat each of said carrier synchroniser sweep rates a third predetermined number of times before selecting a next of said carrier synchroniser sweep rates.

13. (Amended) A quadrature amplitude demodulator comprising a carrier synchroniser for locking a phase of a locally generated signal to a carrier of an incoming signal and a controller for controlling said carrier synchroniser, said carrier synchroniser having an acquisition mode in which a frequency of a locally generated signal sweeps between [second] upper and lower limit values at a plurality of different carrier synchroniser sweep rates, said controller being arranged to initiate a carrier acquisition cycle at a [highest] higher one of said sweep rates, to reduce [a] said sweep rate monotonically and to switch said carrier synchroniser to a tracking mode if a carrier synchronisation error is below a [second] first threshold.

14. (Amended) A demodulator as claimed in claim 13, in which said controller is arranged, in said acquisition mode, to repeat each of said sweep rates a [third] predetermined number of times before selecting a next of said sweep rates.

15. (Amended) A demodulator as claimed in claims 13, in which said controller is arranged, in said acquisition mode, to repeat said carrier acquisition cycle a [fourth] predetermined number of times.

16. (Amended) A demodulator as claimed in claim 13, in which said controller is arranged to return said carrier synchroniser to said acquisition mode if a mean square error of demodulated symbols remains above a [third] second threshold for a predetermined time period.

17. (Amended) A receiver comprising a quadrature amplitude modulation demodulator, the quadrature amplitude modulation demodulator including [comprising] a timing synchroniser for resampling an incoming sampled quadrature amplitude modulated signal and a controller for controlling said timing synchroniser, said timing synchroniser having an acquisition mode in which said incoming signal is resampled with a sampling period which sweeps between first upper and lower limit values at a plurality of different sweep

rates, said controller being arranged to initiate an acquisition cycle at a [highest] higher one of said sweep rates, to reduce [a] said sweep rate monotonically and to switch said timing synchroniser to a tracking mode if a timing error is below a first threshold.

18. (Amended) A receiver comprising a quadrature amplitude demodulator, the quadrature amplitude demodulator including [comprising] a carrier synchroniser for locking a phase of a locally generated signal to a carrier of an incoming signal and a controller for controlling said carrier synchroniser, said carrier synchroniser having an acquisition mode in which a frequency of a locally generated signal sweeps between [second] upper and lower limit values at a plurality of different sweep rates, said controller being arranged to initiate a carrier acquisition cycle at a [highest] higher one of said sweep rates, to reduce [a] said sweep rate monotonically and to switch said carrier synchroniser to a tracking mode if a carrier synchronisation error is below a second threshold.

19. (Newly Added) A demodulator as claimed in claim 1, in which said controller is arranged to initiate said acquisition cycle for said timing synchronizer at a highest of said timing synchroniser sweep rates.

20. (Newly Added) A demodulator as claimed in claim 9, in which said controller is arranged to initiate said carrier acquisition cycle at a highest of said carrier synchroniser sweep rates.

21. (Newly Added) A demodulator as claimed in claim 13, in which said controller is arranged to initiate said carrier acquisition cycle at a highest of said sweep rates.

22. (Newly Added) A receiver as claimed in claim 17, in which said controller is arranged to initiate said acquisition cycle at a highest of said sweep rates.

23. (Newly Added) A receiver as claimed in claim 18, in which said controller is arranged to initiate said carrier acquisition cycle at a highest of said sweep rates.

24. (Newly Added) A quadrature amplitude modulation demodulator comprising a timing synchroniser for resampling an incoming sampled quadrature amplitude modulated signal and a controller for controlling said timing synchroniser, said timing synchroniser having an acquisition mode in which said incoming signal is resampled with a sampling period which sweeps between first upper and lower limit values at a plurality of different timing synchroniser sweep rates, said controller being arranged to initiate an acquisition cycle at a first one of said timing synchroniser sweep rates, determining whether said timing synchroniser achieves a lock at a completion of a sweep between said upper and lower limit values at said first timing synchronizer sweep rate, selecting a different one of said timing synchroniser sweep rates if a lock is not achieved at said first timing synchroniser sweep rate, and switching said timing synchroniser to a tracking mode if a lock is achieved.

25. (Newly Added) A demodulator as claimed in claim 24, further comprising a carrier synchroniser for locking a phase of a locally generated signal to a carrier of said incoming signal, in which said carrier synchroniser has an acquisition mode in which a frequency of a locally generated signal sweeps between second upper and lower limited values at a plurality of different carrier synchroniser sweep rates, said controller being arranged to initiate a carrier acquisition cycle at a first one of said carrier synchroniser sweep rates, determining whether said carrier synchroniser achieves a lock at a completion of a sweep between said upper and lower limit values at said first carrier synchronizer sweep rate, selecting a different one of said carrier synchroniser sweep rates if a lock is not achieved at said first timing synchroniser sweep rate, and switching said carrier synchronizer to a tracking mode if a lock is achieved.